

HW KEY

Practice Problems

- 5) A rectangular prism has a length of 9 units, and a width of 8 units. If the volume of the prism is 936 cubic units, what is the height of the prism?

$$V = l \cdot w \cdot h$$

$$936 = (9)(8)(h)$$

$$\frac{936}{72} = \frac{72h}{72} \quad h = 13 \text{ units}$$

- 6) A rectangular prism has a length of 11 units, and its volume is 704 cubic units. its width and height are the same, find the remaining dimensions of the prism.

$$V = l \cdot w \cdot w$$

$$\frac{704}{11} = \frac{(11)(w^2)}{11}$$

$$\sqrt{64} = \sqrt{w^2}$$

$$8 = w$$

$$\begin{array}{l} w = 8 \\ h = 8 \end{array}$$

- 7) If this prism has a volume of 684 ft³, what is the area of its base?

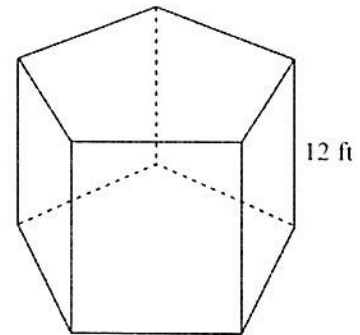
$$V = Bh$$

↑

area
of the
base

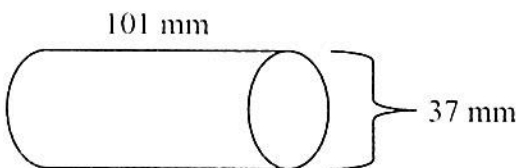
$$\frac{684}{12} = \frac{B(12)}{12}$$

$$B = 57 \text{ ft}^2$$



- 8) Tim has a rectangular prism with a length of 10 centimeters, a width of 2 centimeters, and an unknown height. He needs to build another rectangular prism with a length of 5 centimeters and the same height as the original prism. The volume of the two prisms will be the same. Find the width, in centimeters, of the new prism.

- 9) Find the volume of this cylinder in terms of pi:



$$V = \pi r^2 h$$

$$V = \pi (18.5)^2 (101)$$

$$V = \pi 34567.25$$

$$V = 34567.25\pi \text{ mm}^3$$

10) The volume of a cylinder is 468π cubic inches. If the cylinder's height is 13 inches, what is its radius?

$$V = \pi r^2 h$$

$$\frac{468\pi}{\pi} = \frac{\pi r^2 (13)}{\pi}$$

$$\frac{468}{13} = \frac{r^2 (13)}{13}$$

$$\sqrt{36} = \sqrt{r^2}$$

$$r = 6 \text{ in}$$

11) The volume of a cylinder is 225 cubic inches. If the cylinder's diameter is 10 inches, what is the height of the cylinder in terms of pi?

$$V = \pi r^2 h$$

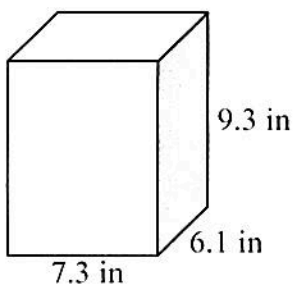
$$225 = \pi (5)^2 h$$

$$\frac{225}{25} = \frac{\pi (25) h}{25}$$

$$\frac{9}{\pi} = \frac{\pi h}{\pi}$$

$$h = \frac{9}{\pi} \text{ in}$$

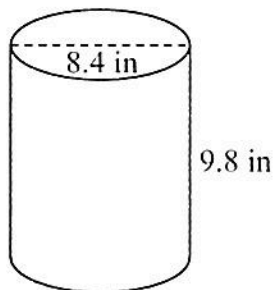
12) Determine which popcorn container has a greater volume:



$$V = l \cdot w \cdot h$$

$$V = 7.3 \cdot 6.1 \cdot 9.3$$

$$V = 414.129 \text{ in}^3$$



$$V = \pi r^2 h$$

$$V = \pi (4.2)^2 (9.8)$$

$$V = 543.093 \text{ in}^3$$

13) A can of soda is in the shape of a cylinder with a diameter of 6.4 cm and a height of 12.3 cm. How many cubic cm of liquid does the can hold?

$$V = \pi r^2 h$$

$$V = \pi (3.2)^2 (12.3)$$

$$V = 395.69 \text{ cm}^3$$

14) The volume of a cylinder is 128π cubic inches. If the cylinder's height is 8, what is the radius of the cylinder?

$$V = \pi r^2 h$$

$$128\pi = \pi r^2 (8)$$

$$\frac{128}{8} = \frac{r^2 (8)}{8}$$

$$16 = r^2$$

$$r = 4 \text{ in}$$